

I Claim:

5        1. In an accommodating intraocular lens for implantation within an eye, said lens comprising an optic having an initial thickness and an optic positioning element coupled with said optic, the improvement being that said optic initial thickness can be altered in response to a change in force on said optic.

10      2. The lens of claim 1, said optic positioning element being formed of a yieldable synthetic resin material.

15      3. The lens of claim 2, said optic positioning element being formed of a material comprising a compound selected from the group consisting of silicon, polymethylmethacrylates, and mixtures thereof.

20      4. The lens of claim 1, said optic positioning element comprising a posterior face, an anterior face, and a bight, said anterior face, said posterior face, and said bight cooperating to form a chamber within said optic positioning element.

25      5. The lens of claim 4, wherein said optic positioning element posterior face or anterior face includes an opening therethrough, said opening communicating with said chamber.

30      6. The lens of claim 1, wherein said optic positioning element comprises a disc-shaped body, and said optic is positioned approximately in the center of said body.

25      7. The lens of claim 6, wherein said disc-shaped body comprises at least two radially extended flanges.

30      8. The lens of claim 7, wherein said flanges are joined to one another by respective membranes.

9. The lens of claim 8, wherein said flanges have respective thicknesses and said membranes have respective thicknesses, each of said flange thicknesses being greater than each of said membrane thicknesses.

5 10. The lens of claim 6, wherein said disc-shaped body has a horizontal plane, and said optic lies along said horizontal plane.

11. The lens of claim 6, wherein said disc-shaped body has a horizontal plane, and said optic lies outside said horizontal plane.

10 12. The lens of claim 1, wherein said optic initial thickness can be increased in response to ciliary body contraction.

15 13. The lens of claim 12, wherein said optic initial thickness can be increased to a second thickness in response to ciliary body contraction, said second thickness being at least about 1.1 times greater than said initial thickness.

20 14. The lens of claim 12, wherein said optic is formed of a material having a refractive index of at least about 1.36.

15. The lens of claim 14, wherein said optic has a cross-sectional shape selected from the group consisting of biconvex, meniscus, and planoconvex shapes.

25 16. The lens of claim 1, wherein said optic initial thickness can be decreased in response to ciliary body contraction.

17. The lens of claim 16, wherein said optic initial thickness can be decreased to a second thickness in response to ciliary body contraction, said initial thickness being at least about 1.2 times greater than said second thickness.

30 18. The lens of claim 1, wherein said optic comprises a gas-filled chamber.

19. The lens of claim 16, wherein said optic is formed of a material having a refractive index of less than about 1.2.

5 20. The lens of claim 19, wherein said optic has a cross-sectional shape selected from the group consisting of meniscus, biconcave, and planoconcave shapes.

10 21. In an accommodating intraocular lens for implantation within an eye, said lens comprising:

a pair of optics immediately adjacent one another; and

an optic positioning element coupled with at least one of said optics.

15 22. The lens of claim 21, wherein one of said optics is formed of a material selected from the group consisting of refractive solids, liquids, and gels, and the other of said optics comprises a gas-filled chamber.

20 23. The lens of claim 21, wherein one of said optics has a refractive index of at least about 1.36, and the other of said optics has a refractive index of less than about 1.2.

24. The lens of claim 21, wherein both of said optics is formed of a material selected from the group consisting of refractive solids, liquids, and gels.

25 25. The lens of claim 21, wherein both of said optics have a refractive index of at least about 1.36.

26. The lens of claim 21; said optic positioning element being formed of a yieldable synthetic resin material.

30 27. The lens of claim 26, said optic positioning element being formed of a material comprising a compound selected from the group consisting of silicone, polymethylmethacrylates, and mixtures thereof.

28. The lens of claim 21, said optic positioning element comprising a posterior face, an anterior face, and a bight, said anterior face, said posterior face, and said bight cooperating to form a chamber within said optic positioning element.

5 29. The lens of claim 28, wherein said optic positioning element posterior face or anterior face includes an opening therethrough, said opening communicating with said chamber.

10 30. The lens of claim 21, wherein said optic positioning element comprises a disc-shaped body, and said optic is positioned approximately in the center of said body.

31. The lens of claim 30, wherein said disc-shaped body comprises at least two radially extended flanges.

15 32. The lens of claim 31, wherein said flanges are joined to one another by respective membranes.

20 33. The lens of claim 32, wherein said flanges have respective thicknesses and said membranes have respective thicknesses, each of said flange thicknesses being greater than each of said membrane thicknesses.

34. The lens of claim 30, wherein said disc-shaped body has a horizontal plane, and said optic lies along said horizontal plane.

25 35. The lens of claim 30, wherein said disc-shaped body has a horizontal plane, and said optic lies outside said horizontal plane.

30 36. A method of providing accommodation to an eye comprising a ciliary body and whose natural lens has been removed, said method comprising the step of implanting an intraocular lens into the eye, said lens comprising an optic having an initial thickness which can be altered on response to movements of said ciliary body.

37. The method of claim 36, said eye having a retina and further including the step of contracting said ciliary body, said contracting step causing said optic initial thickness to change so as to increase convergence of light to the retina.

5 38. The method of claim 37, wherein said optic is formed of a material having a refractive index of greater than about 1.36, and said contracting step causes said optic thickness to increase.

10 39. The method of claim 38, wherein said increased optic thickness is at least about 1.1 times more than said initial optic thickness.

40. The method of claim 37, wherein said optic is formed of a material having a refractive index of less than about 1.2, and said contracting step causes said optic thickness to decrease.

15 41. The method of claim 40, wherein said initial optic thickness is at least about 1.2 times more than said decreased optic thickness.